

## CLAIMS

1. A fabrication method of a light-emitting device is characterized by:  
ejecting a solution containing a light-emitting body composition from the below  
5 toward an anode or a cathode under a pressure lower than atmosphere pressure; and  
forming a thin film having at least one layer structuring a light-emitting body by  
depositing the light-emitting body composition on the anode or the cathode.

2. A fabrication method of a light-emitting device is characterized by:  
10 ejecting a solution containing a light-emitting body composition from the below  
toward an anode or a cathode under a pressure of  $1 \times 10^2$  to  $1 \times 10^5$  Pa; and  
forming a thin film having at least one layer structuring a light-emitting body by  
depositing the light-emitting body composition on the anode or the cathode.

15 3. A fabrication method of a light-emitting device is characterized by:  
ejecting a solution containing a light-emitting body composition from the below  
toward an anode or a cathode under a pressure lower than atmosphere pressure; and  
forming a thin film having at least one layer structuring a light-emitting body by  
depositing a remaining of the light-emitting body composition on the anode or the  
20 cathode and volatilizing a solvent in the solution in a duration before the solution arrives  
at the anode or the cathode.

4. A fabrication method of a light-emitting device is characterized by:  
ejecting a solution containing a light-emitting body composition from the below  
25 toward an anode or a cathode under a pressure lower than atmosphere pressure;

commencing to volatilize a solvent in the solution simultaneously with an arrival thereof at the anode or the cathode by previously heating the anode or the cathode; and

forming a thin film having at least one layer structuring a light-emitting body by depositing a remaining of the light-emitting body composition on the anode or the  
5 cathode.

5. A fabrication method of a light-emitting device is characterized by:

ejecting a solution containing a light-emitting body composition from the below toward an anode or a cathode under a pressure lower than atmosphere pressure;

10 commencing to volatilize a solvent in the solution simultaneously with an arrival thereof at the anode or the cathode by previously heating the anode or the cathode at from room temperature to 200 °C; and

forming a thin film having at least one layer structuring a light-emitting body by depositing a remaining of the light-emitting body composition on the anode or the  
15 cathode.

6. A fabrication method of a light-emitting device is characterized by:

setting up an anode or a cathode in a range of 0° to 30° relative to a horizontal plane;

20 ejecting a solution containing a light-emitting body composition from the below under a pressure lower than atmosphere pressure; and

forming a thin film having at least one layer structuring a light-emitting body by depositing the light-emitting body composition on the anode or the cathode.

25 7. A fabrication method of a light-emitting device is characterized by:

setting up an anode or a cathode in a range of 0° to 30° relative to a horizontal plane;

ejecting a solution containing a light-emitting body composition from the below under a pressure lower than atmosphere pressure; and

5        forming a thin film having at least one layer structuring a light-emitting body by depositing a remaining of the light-emitting body composition on the anode or the cathode and volatilizing a solvent in the solution in a duration before the solution arrives at the substrate.

10        8. A fabrication method of a light-emitting device is characterized by:

setting up an anode or a cathode in a range of 0° to 30° relative to a horizontal plane;

ejecting a solution containing a light-emitting body composition from the below under a pressure lower than atmosphere pressure;

15        commencing to volatilize a solvent in the solution simultaneously with an arrival thereof at the anode or the cathode by previously heating the anode or the cathode; and

forming a thin film having at least one layer structuring a light-emitting body by depositing a remaining of the light-emitting body composition on the anode or the cathode.

20

9. A fabrication method of a light-emitting device is characterized by:

setting up an anode or a cathode in a range of 0° to 30° relative to a horizontal plane;

25        ejecting a solution containing a light-emitting body composition from the below under a pressure lower than atmosphere pressure;

commencing to volatilize a solvent in the solution simultaneously with an arrival thereof at the anode or the cathode by previously heating the anode or the cathode at from room temperature to 200 °C; and

forming a thin film having at least one layer structuring a light-emitting body by  
5 depositing a remaining of the light-emitting body composition on the anode or the cathode.

10. A fabrication method of a light-emitting device comprising the steps of:  
ejecting a solution containing a light-emitting body composition toward an anode  
10 provided on a substrate under a pressure lower than atmosphere pressure;

forming a thin film having at least one layer structuring a light-emitting body by  
depositing the light-emitting body composition on the anode; and

forming a cathode on the light-emitting body by a sputter method or an  
evaporation method after forming the film of the light-emitting body composition,

15 wherein the fabrication method of the light-emitting device is further  
characterized in that the formation of the thin film having at least one layer structuring  
the light-emitting body is performed by setting up the substrate with a substrate surface  
in a range of 0° to 30° relative to a horizontal plane, and by ejecting the solution  
containing the light-emitting body composition from the below of the substrate surface.

20

11. A fabrication method of a light-emitting device comprising the steps of:  
ejecting a solution containing a light-emitting body composition toward an anode  
under a pressure lower than atmosphere pressure;

forming a thin film having at least one layer structuring a light-emitting body by  
25 depositing the light-emitting body composition on the anode and volatilizing a solvent in

the solution in a duration before the solution arrives at the substrate; and

forming a cathode on the light-emitting body by a sputter method or an evaporation method after forming the thin film of the light-emitting body composition,

wherein the fabrication method of the light-emitting device is further  
5 characterized in that the formation of the thin film having at least one layer structuring the light-emitting body is performed by setting up the substrate with a substrate surface in a range of 0° to 30° relative to a horizontal plane, and by ejecting the solution containing the light-emitting body composition from the below of the substrate surface.

10 12. A fabrication method of a light-emitting device comprising the steps of:

ejecting a solution containing a light-emitting body composition toward an anode under a pressure lower than atmosphere pressure;

commencing to volatilize a solvent in the solution simultaneously with an arrival thereof at the anode or the cathode by previously heating the anode;

15 forming a thin film having at least one layer structuring a light-emitting body by depositing a remaining of the light-emitting body composition on the anode; and

forming a cathode on the light-emitting body by a sputter method or an evaporation method after forming the thin film of the light-emitting body composition,

wherein the fabrication method of the light-emitting device is further  
20 characterized in that the formation of the thin film having at least one layer structuring the light-emitting body is performed by setting up the substrate with a substrate surface in a range of 0° to 30° relative to a horizontal plane, and by ejecting the solution containing the light-emitting body composition from the below of the substrate surface.

25 13. A fabrication method of a light-emitting device comprising the steps of:

ejecting a solution containing a light-emitting body composition toward an anode under a pressure lower than atmosphere pressure;

commencing to volatilize a solvent in the solution simultaneously with an arrival thereof at the anode or the cathode by previously heating the anode at from room  
5 temperature to 200 °C;

forming a thin film having at least one layer structuring a light-emitting body by depositing a remaining of the light-emitting body composition on the anode; and

forming a cathode on the light-emitting body by a sputter method or an evaporation method after forming the thin film of the light-emitting body composition,

10 wherein the fabrication method of a light-emitting device is further characterized in that the formation of the thin film having at least one layer structuring the light-emitting body is performed by setting up the substrate with a substrate surface in a range of 0° to 30° relative to a horizontal plane, and by ejecting the solution containing the light-emitting body composition from the below of the substrate surface.

15

14. A fabrication method of a light-emitting device according to any one of claims 10 to 13,

wherein the fabrication method of the light-emitting device is characterized in that each of the formations of the thin film having at least one layer structuring the  
20 light-emitting body and the cathode is performed in a deposition apparatus in a multi-chamber scheme without a release to the air.

15. A fabrication method of a light-emitting device according to any one of claims 10 to 13,

25 wherein the fabrication method of the light-emitting device is characterized in

that each of the formations of the thin film having at least one layer structuring the light-emitting body and the cathode is performed in a deposition apparatus in an in-line scheme without a release to the air.

- 5           16. A fabrication method of a light-emitting device comprising the steps of:
- ejecting a solution containing a light-emitting body composition toward a cathode provided on a substrate under a pressure lower than atmosphere pressure;
- forming a thin film having at least one layer structuring a light-emitting body by depositing the light-emitting body composition on the cathode; and
- 10          forming an anode on the light-emitting body by a sputter method or an evaporation method after forming the thin film of the light-emitting body composition,
- wherein the fabrication method of the light-emitting device is further characterized in that the formation of a thin film having at least one layer structuring the light-emitting body is performed by setting up the substrate with a substrate surface in a
- 15          range of 0° to 30° relative to a horizontal plane, and by ejecting the solution containing the light-emitting body composition from the below of the substrate surface.

17. A fabrication method of a light-emitting device comprising the steps of:
- ejecting a solution containing a light-emitting body composition toward a
- 20          cathode under a pressure lower than atmosphere pressure;
- forming a thin film having at least one layer structuring a light-emitting body by depositing the light-emitting body composition on the cathode and volatilizing a solvent in the solution in a duration before the solution arrives at the substrate; and
- forming an anode on the light-emitting body by a sputter method or an
- 25          evaporation method after forming the thin film of the light-emitting body composition,

wherein the fabrication method of a light-emitting device is further characterized in that the formation of the thin film having at least one layer structuring the light-emitting body is performed by setting up the substrate with a substrate surface in a range of 0° to 30° relative to a horizontal plane, and by ejecting the solution containing the light-emitting body composition from the below of the substrate surface.

18. A fabrication method of a light-emitting device comprising the steps of:  
ejecting a solution containing a light-emitting body composition toward a cathode under a pressure lower than atmosphere pressure;  
10 commencing to volatilize a solvent in the solution simultaneously with an arrival thereof at the cathode by previously heating the cathode;  
forming a thin film having at least one layer structuring a light-emitting body by depositing a remaining of the light-emitting body composition on the cathode; and  
forming an anode on the light-emitting body by a sputter method or an  
15 evaporation method after forming the thin film of the light-emitting body composition,  
wherein the fabrication method of the light-emitting device is further characterized in that the formation of at the thin film having at least one layer structuring the light-emitting body is performed by setting up the substrate with a substrate surface in a range of 0° to 30° relative to a horizontal plane, and by ejecting the solution  
20 containing the light-emitting body composition from the below of the substrate surface.

19. A fabrication method of a light-emitting device comprising the steps of:  
ejecting a solution containing a light-emitting body composition toward a cathode under a pressure lower than atmosphere pressure;  
25 commencing to volatilize a solvent in the solution simultaneously with an arrival



thereof at the cathode by previously heating the cathode at from room temperature to 200 °C;

forming a thin film having at least one layer structuring a light-emitting body by depositing a remaining of the light-emitting body composition on the cathode; and

5 forming an anode on the light-emitting body by a sputter method or an evaporation method after forming the thin film of the light-emitting body composition,

wherein the fabrication method of the light-emitting device is further characterized in that the formation of the thin film having at least one layer structuring the light-emitting body is performed by setting up the substrate with a substrate surface  
10 in a range of 0° to 30° relative to a horizontal plane, and by ejecting the solution containing the light-emitting body composition from the below of the substrate surface.

20. A fabrication method of a light-emitting device according to any one of claims 16 to 19,

15 wherein the fabrication method of a light-emitting device is characterized in that each of the formations of the thin film having at least one layer structuring the light-emitting body and the cathode is performed in a deposition apparatus in a multi-chamber scheme without a release to the air.

20 21. A fabrication method of a light-emitting device according to any one of claims 16 to 19,

wherein the fabrication method of the light-emitting device is characterized in that each of the formations of the thin film having at least one layer structuring the light-emitting body and the cathode is performed in a deposition apparatus in an in-line  
25 scheme without a release to the air.

22. A fabrication method of a light-emitting device according to any one of claims 1, 3 to 13 and 16 to 19,

wherein the fabrication method of the light-emitting device is characterized in  
5 that under the pressure lower than atmosphere pressure is in an inert gas atmosphere at  $1 \times 10^3$  to  $1 \times 10^5$  Pa.

23. A fabrication method of a light-emitting device according to any one of claims 1, 3 to 13 and 16 to 19,

10 wherein the fabrication method of the light-emitting device is characterized in that under the pressure lower than atmosphere pressure is in an inert gas atmosphere at  $1 \times 10^2$  to  $1 \times 10^5$  Pa.

24. A fabrication method of a light-emitting device according to any one of  
15 claims 1, 3 to 13 and 16 to 19,

wherein the fabrication method of the light-emitting device is characterized in that the light-emitting body composition is intermittently deposited to form a thin film.

25. A fabrication method of a light-emitting device according to any one of  
20 claims 1, 3 to 13 and 16 to 19,

wherein the fabrication method of the light-emitting device is characterized in that the light-emitting body composition is continuously deposited to form a thin film.

26. A fabrication method of a light-emitting device according to any one of  
25 claims 1, 3 to 13 and 16 to 19,

wherein the fabrication method of the light-emitting device is characterized in that the solution containing the light-emitting body composition is ejected through a single or a plurality of nozzles.

5           27. A fabrication method of a light-emitting device according to any one of claims 1, 3 to 13 and 16 to 19,

          wherein the fabrication method of the light-emitting device is characterized in that the light-emitting body composition is a hole injection material, a hole transport material, a luminescent material, an electron transport material, an electron injection  
10   material, a hole blocking material or an electron blocking material.

          28. A fabrication method of a light-emitting device according to any one of claims 1, 3 to 13 and 16 to 19,

          wherein the fabrication method of the light-emitting device is characterized in  
15   that the thin film having at least one layer structuring the light-emitting body is a thin film to function as a layer selected from a luminescent layer, a hole injection layer, a hole transport layer, a hole blocking layer, an electron injection layer, an electron transport layer or an electron blocking layer.

20           29. A light-emitting device is characterized in that the light-emitting device is fabricated by a method according to any one of claims 1 to 13 and 16 to 19.